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09/900,777	07/06/2001	Michael K. Brand	12177/21201	7690

7590

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EXAMINER

GEBRESILASSIE, KIBROM K

ART UNIT

PAPER NUMBER

2128

DATE MAILED: 07/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/900,777

Applicant(s)

BRAND ET AL.

Examiner

Kibrom K. Gebresilassie

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 May 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date April 11, 2005.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. This action is responsive to the application filed on July 06, 2001.
2. Claims 1-22 have been examined and rejected.

#### ***Information Disclosure Statement***

3. The Office acknowledges receipt of the Information Disclosure Statement filed on April 11, 2005. It has been placed in the application file and the information referred to therein has been considered except a reference by a title "Reliability Assurance Program" because the applicant does not provide the publication date of the prior art.

#### ***Oath/Declaration***

4. The Office acknowledges receipt of a properly signed oath/declaration filed on January 28, 2002.

#### ***Claim Rejections - 35 USC § 101***

5. 35 U.S.C. 101 reads as follows:

*Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.*

6. Claims 1-9, 11-19, 21, and 22 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. *The Examiner submits that Applicant's have not recited any limitations relating to a practical application in the technological arts and have merely claimed a manipulation of an abstract idea. Section 2106 [R-2] (Patentable Subject Matter - Computer-Related Inventions) of the MPEP recites the following:*

*"In practical terms, claims define nonstatutory processes if they:*

- consist solely of mathematical operations without some claimed practical application (i.e., executing a "mathematical algorithm"); or*
- **simply manipulate abstract ideas**, e.g., a bid (Schrader, 22 F.3d at 293-94, 30 USPQ2d at 1458-59) or a bubble hierarchy (Warmerdam, 33 F.3d at 1360, 31 USPQ2d at 1759), **without some claimed practical application.**"*

*An invention which is eligible for patenting under 35 U.S.C. § 101 is in the "useful arts" when it is a machine, manufacture, process or composition of matter, which produces a concrete, tangible, and useful result. The fundamental test for patent eligibility is thus to determine whether the claimed invention produces a **"useful, concrete and tangible result."** The test for practical application as applied by the examiner involves the determination of the following factors:*

*(1) "Useful" - The Supreme Court in *Diamond v. Diehr* requires that the examiner look at the claimed invention as a whole and compare any asserted utility with the claimed invention to determine whether the asserted utility is accomplished.*

*(2) "Tangible" - Applying *In re Warmerdam*, 33 F.3d 1354, 31 USPQ2d 1754 (Fed. Cir. 1994), the examiner will determine whether there is simply a mathematical construct claimed, such as a disembodied data structure and method of making it. If so, the claim involves no more than a manipulation of an abstract idea and therefore, is nonstatutory under 35 U.S.C. § 101. In *Warmerdam* the abstract idea of a data structure became capable of producing a useful result when it was fixed in a tangible medium which enabled its functionality to be realized.*

*(3) "Concrete" - Another consideration is whether the invention produces a "concrete" result. Usually, this question arises when a result cannot be assured. An appropriate rejection under 35 U.S.C. § 101 should be accompanied by a lack of enablement rejection, because the invention cannot operate as intended without undue experimentation.*

*The Examiner respectfully submits, under current PTO practice, that the claimed invention does not recite either a useful, concrete, or tangible result and is merely drawn to a manipulation of abstract ideas.*

The claims are not **concrete** or **tangible**; since, the claims are refer to methods that manipulate an abstract mathematical algorithm which are not implemented in technological arts such as a computer or a computer readable medium Therefore, the

claimed inventions are nonstatutory for three reasons:

- i. It is an abstract idea with no embodiment
- ii. It is an abstract algorithm that only manipulates an abstract idea
- iii. It produces no concrete or tangible results.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

*A person shall be entitled to a patent unless –*

*(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.*

8. Claims 1-22 are rejected under 35 U.S.C. 102(a) as being anticipated by ADI Reliability Handbook, 2000.

**As per Claim 1:**

ADI Reliability Handbook teaches determining accelerated stress testing data for the product using the relationship  $t_F = AF \times t_A^2$  (the formula can be rewrite as  $AF = \frac{t_F}{t_A^2}$ ), the accelerated stress testing data representing the response of the product operating in a first environment (" $At = \frac{t_1}{t_2}$ , where  $t_1$  and  $t_2$  are Mean time to Failure"; page 11 equation 1)

Calculating the mean-time-between-failures for the operating in a second environment based on the accelerated stress testing data

Other terms include Mean Time to Failure (MTTF or MTBF) and useful life. MTTF is the time period over which a meaningful portion of the population will have failed. In the case of an exponential distribution with a constant failure rate, around 63% of the population will have failed by the MTTF =  $1/\lambda$ .", page 10).

**As per Claim 2:**

ADI Reliability Handbook teaches first environment is more likely than the second environment to cause the product to fail

(“

Applying these acceleration factors to the data above, the equivalent device hours at 55°C can be calculated for 125°C and 135°C.

”, page 14; Table IV, page 14).

**As per Claim 3:**

ADI Reliability Handbook teaches the accelerated stress testing data represents the length of time the product operates in the first environment before the product to fail (table IV page 14, under column, “*Number Of Device Hrs. at Test Temp*”).

**As per Claim 4:**

ADI Reliability Handbook teaches the accelerated stress testing data is derived from a plurality of different stress tests (*Autoclave, JEDEC-STD-22 Method A102 and A101, Temperature Humidity Bias HAST* etc; pages 17-20).

**As per Claim 5:**

ADI Reliability Handbook teaches the plurality of stress tests includes a temperature test (“*Temperature Cycle*” page 19, “*Thermal Shock*” page 20) and a vibration test (*ultrasonic vibration*; page 47, a paragraph starting with “*The Si nodules are formed...*” line 3).

**As per Claim 6:**

ADI Reliability Handbook teaches calculating upper and lower confidence limits for the MTPF calculation (on page 14, “*the confidence intervals normally used are 60% and 90% respectively*” and on page 15, “*At 60% C.I.  $Fr = 1.27 \times 10^{-8}$ ; At 90% C.I.  $Fr = 3.3 \times 10^{-8}$* ”).

**As per Claim 7:**

ADI Reliability Handbook teaches accelerated stress-testing data is determined at least in part from BOM information on the product (*Device information: a complete FAIR form*,

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*reliability tracking sheet, or other form of documentation which details part type, serial number, date code, and manufacturing lot number, page 61).*

**As per Claim 8:**

ADI Reliability Handbook teaches step of calculating is performed during the design of the product (*"This is achieved through careful planning in the design phases of any new development or equipment instruction..."* page 1, under title "ADI Reliability Charter" lines 4-6).

**As per Claim 9:**

ADI Reliability Handbook teaches step of calculating is performed prior to manufacturing the product for commercial use (page 9 under a title "*Product Reliability Stressing*" lines 1-5).

**As per Claim 10:**

ADI Reliability Handbook teaches step of calculating is performed using a computer program (page 17 second paragraph lines 1-3).

**As per Claim 11:**

ADI Reliability Handbook teaches the accelerated stress testing data includes accelerated stress testing data includes accelerated stress testing data for a pervious design of a product (page 6 under a title "*Release Phase*" the first paragraph lines 3-6).

**As per Claim 12:**

The limitation of claim 12 has already been discussed in the rejection of claims 2 and 11. It is therefore rejected under the same rationale.

**As per Claim 13:**

The limitation of claim 13 has already been discussed in the rejection of claims 1 and 11. It is therefore rejected under the same rationale.

**As per Claim 14:**

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ADI Reliability teaches step of calculating includes using the relationship EXP

$[1/k \sum_{i=1}^k \ln(t_2^2/t_1^2)]$ ; and wherein  $t_1$  = time to first failure during accelerated stress testing for

pervious design of the product, and  $t_2$  = time to first failure during accelerated stress testing for

the product ( $At = t_1/t_2 = \exp.[-E_a/k (1/T_{TEST} - 1/T_{USE})]$ ; page 11).

**As per Claim 15:**

ADI Reliability Handbook teaches calculating a factor increase or decrease in the life of the product as compared to the life of the pervious design of the product (page 6, paragraph one and two of "Release Phase").

**As per Claim 16:**

The limitation of claim 16 has already been discussed in the rejection of claim 4. It is therefore rejected under the same rationale.

**As per Claim 17:**

The limitation of claim 17 has already been discussed in the rejection of claim 5. It is therefore rejected under the same rationale.

**As per Claim 18:**

The limitation of claim 18 has already been discussed in the rejection of claim 8. It is therefore rejected under the same rationale.

**As per Claim 19:**

The limitation of claim 19 has already been discussed in the rejection of claim 9. It is therefore rejected under the same rationale.

**As per Claim 20;**

The limitation of claim 20 has already been discussed in the rejection of claim 10. It is therefore rejected under the same rationale.



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**As per Claim 21:**

The limitation of claim 21 has already been discussed in the rejection of claims 1, 2, and 4. It is therefore rejected under the same rationale.

**As per Claim 22:**

The limitation of claim 22 has already been discussed in the rejection of claims 1, 2, and 7. It is therefore rejected under the same rationale.

**Conclusion**

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
2. Any inquiring concerning this communication or earlier communication from the examiner should be directed to Kibrom K. Gebresilassie whose telephone number is (571) 272-8571. The examiner can normally be reached on Monday-Friday, 8:30 am to 4:30 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner supervisor, Jean R. Homere can be reached at (571) 272-3780. The official fax number is (703) 872-9306. Any inquiring of a general nature relating to the status of this application should be directed to the group receptionist whose telephone number is (571) 272-3700.

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Handwritten signature of Kibrom K. Gebresilassie, dated 10/2/2008.